

Appl. No. 10/541,339
Response Dated January 21, 2009
Reply to Office Action of September 19, 2008

••• A R G U M E N T S / R E M A R K S •••

The Official Action of September 19, 2008 has been thoroughly studied. Accordingly, the following remarks are believed to be sufficient to place the application into condition for allowance.

By the present amendment independent claim 16 has been changed to recite that the content of methyl ethyl ketone of the aqueous vulcanizable adhesive composition is not more than 10 wt.%.

As discussed below, support for this change to the claims is found on page 6 of applicants' specification.

In each of claims 5, 6 and 11-13 the term "is used" has been changed to "is present" to avoid the inference of method steps.

Entry of the changes to the claims is respectfully requested.

Claims 1, 2 and 4-17 are pending in this application.

Claims 1, 14, 15 and 17 stand withdrawn by the Examiner.

Claims 2, 5, 6 and 11-13 stand rejected under 35 U.S.C. §112, second paragraph as being indefinite.

Under this rejection the Examiner notes that claim 2 recites the limitation "the phenol resin emulsion comprises...3 to 40% of methyl ethyl ketone," and claim 16 recites "the content of methyl ethyl ketone being not more than 10 wt.%" in the emulsion.

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On page 6, lines 9-25 of applicants' specification it is described that the aqueous vulcanizable adhesive composition is formed by further adding a curing agent and water to the phenol resin emulsion. Claim 2 defines the composition of the phenol resin emulsion and the content of methyl ethyl ketone in the phenol resin emulsion composition being 3 to 40 wt.%. The content of methyl ethyl ketone of the aqueous vulcanizable adhesive composition is not more than 10 wt.%.

Accordingly, as noted above, claim 16 has been changed to recite that the content of methyl ethyl ketone "of the aqueous vulcanizable adhesive composition" is not more than 10 wt.%.

In regard to claims 5, 6 and 11-13 the Examiner has taken the position that the recitation of "is used" rendered the claims indefinite.

As noted above, in each of claims 5, 6 and 11-13 the term "is used" has been changed to "is present."

Claims 2, 4-13 and 16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,200,455 to Warren, Japanese reference no. 6-306340 to Suzuki et al., Japanese reference no. 61-278579 to Eguchi et al., each in combination with U.S. Patent No. 5,346,957 to Tsuji et al., Japanese reference no. 2002-194060 to Moriyama et al. and Japanese reference no. 05-0255451 to Hagiwara et al.

For the reasons set forth below it is submitted that all of the pending claims are allowable over the prior art or record and therefore, the outstanding rejection of the claims should properly be withdrawn.

Favorable reconsideration by the Examiner is earnestly solicited.

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The Examiner has relied upon Warren as teaching:

...composition of rubber and metal material bonded with a vulcanizable aqueous adhesive comprising a phenol resin emulsion with as little as 5% of an organic solvent for the phenol resin, an aqueous water-soluble polymeric solution, and a curing agent, such as hexamethylenetetramine, for the phenol resin.

The Examiner has relied upon each of Suzuki et al. and Eguchi et al. as teaching:

...vulcanizable aqueous adhesive for composites comprising a phenol resin emulsion with an organic solvent for the phenol resin, an aqueous water-soluble polymeric substance solution, and a curing agent, such as hexamethylenetetramine, for the phenol resin.

The Examiner concedes that “[e]ach of Warren, Suzuki et al. or Eguchi et al. differ from the claimed invention in that they do not specify methyl ethyl ketone as the solvent for the phenol resin.

“However” the Examiner states “it is known in the art to use methyl ethyl ketone as a solvent for phenol resin in adhesive applications, such as taught by Tsuji et al. (col. 6, lines 44-46), Moriyama et al (see abstract) and Hagiwara et al. (see abstract), in order to provide good dissolution for the resin.”

The Examiner takes the position that:

...it would have been obvious....to use methyl ethyl ketone as the solvent for the phenol resin in the vulcanizable adhesive of Warren, Suzuki et al. or Eguchi et al. in order to obtain the advantages taught by Tsuji et al., Moriyama et al. or Hagiwara et al., motivated by a reasonable expectation of success.

Suzuki et al. includes Examiner 1-3 that are directed to vulcanizable adhesive compositions that comprise the following components:

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Methyl ethyl ketone	90 parts by weight
Unvulcanized NBR	2 parts by weight
Resol phenol resin	5 parts by weight
Chlorinated polyethylene	3 parts by weight

In Examples 4-6 it is shown that the attempts to produce an aqueous dispersion liquid using the vulcanizable adhesive composition prepared according to Example 1 was not possible because the methyl ethyl ketone was completely vaporized under reduced pressure when the aqueous dispersion liquid was prepared.

Therefore, a phenol resin emulsion with an organic solvent for the phenol resin cannot be formed by Suzuki et al.

It therefore follows that the modifying Suzuki et al. as proposed by the Examiner (to include methyl ethyl ketone) would, as shown by the Examples of Suzuki et al., fail to render applicants' claimed invention obvious.

Eguchi et al. forms a vulcanizable adhesive composition containing the following components:

Novolak type phenol resin

Hexamethylenetetramine curing agent

Fine powdered silica reinforcing agent

Organic silane surface treating agent

The vulcanizable adhesive composition is prepared in the form of an organic solvent dispersion liquid.

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Eguchi et al. does not form an aqueous phenol resin emulsion.

Therefore, Eguchi et al, alone or in combination with any of the secondary references, does not render applicants' claimed invention obvious.

Warren teaches a:

...phenolic resin dispersion is prepared by mixing (a) a pre-formed, solid substantially water-insoluble, phenolic resin; (b) water; (c) an organic coupling solvent; and (d) polyvinyl alcohol...

This teaching is substantially identical to the prior art as described in the paragraph bridging pages 1-2 of applicants' specification:

JP-A-53-102359 discloses a process for preparing an aqueous dispersion of phenol resin by mixing (a) substantially water-insoluble phenol resin, (b) water, (c) an organic coupling solvent, and (d) polyvinyl alcohol...

Thus, Warren is comparable to the prior art upon which applicants' invention is an improvement.

Warren teaches the use of a coupling solvent that is miscible with water (See column 3, lines 61-63), examples of which are also noted by applicants on page 2 of their specification.

As disclosed in the paragraph bridging pages 2-3 of applicants' specification, applicants' invention involves "using methyl ethyl ketone having a partial miscibility with water in place of the organic solvent having a complete miscibility with water, where an amount of methyl ethyl ketone is considerably reduced."

Moriyama et al. teaches a varnish in Examples 1-5 that includes the following components:

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Phenol aralkyl type epoxy resin

o-Phenyl phenol resin curing agent

Methyl ethyl ketone

2-Ethyl-4-methylimidazol curing agent

Moriyama et al. does not teach an aqueous phenol resin emulsion and therefore Moriyama et al.'s use of methyl ethyl ketone is not obvious for use in Warren or any of the other primary references.

Moreover, Moriyama et al.'s use of methyl ethyl ketone does not render obvious the advantages of applicants' invention over the prior art which includes Warren.

Tsuji et al. teaches an adhesive composition that comprises 100 parts by weight of a rubber composition and 50-500 parts by weight of a thermosetting resin.

Hagiwara et al. teaches a vulcanizing adhesive composition that contains novolak epoxy resin, novolak phenol resin, a curing catalyst and polyphenylene oxide resin.

The teachings of Tsuji et al. and Hagiwara et al. are not sufficiently related to Warren to render the use of methyl ethyl ketone obvious in Warren.

Moreover teachings of Tsuji et al. and Hagiwara et al. does not render obvious the advantages of applicants' invention over the prior art which includes Warren.

Based upon the above distinctions between the prior art relied upon by the Examiner and the present invention, and the overall teachings of prior art, properly considered as a whole, it is

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respectfully submitted that the Examiner cannot rely upon the prior art as required under 35 U.S.C. §103 to establish a *prima facie* case of obviousness of applicants' claimed invention.

It is, therefore, submitted that any reliance upon prior art would be improper inasmuch as the prior art does not remotely anticipate, teach, suggest or render obvious the present invention.

It is submitted that the claims, as now amended, and the discussion contained herein clearly show that the claimed invention is novel and neither anticipated nor obvious over the teachings of the prior art and the outstanding rejection of the claims should hence be withdrawn.

Therefore, reconsideration and withdrawal of the outstanding rejection of the claims and an early allowance of the claims is believed to be in order.

It is believed that the above represents a complete response to the Official Action and reconsideration is requested.

If upon consideration of the above, the Examiner should feel that there remain outstanding issues in the present application that could be resolved, the Examiner is invited to contact applicants' patent counsel at the telephone number given below to discuss such issues.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of

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time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,



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